

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
7 July 2005 (07.07.2005)

PCT

(10) International Publication Number  
**WO 2005/062683 A2**

(51) International Patent Classification<sup>7</sup>: **H05B 41/00**

(21) International Application Number:  
PCT/GB2004/005413

(22) International Filing Date:  
24 December 2004 (24.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0330019.1 24 December 2003 (24.12.2003) GB

(71) Applicant and

(72) Inventor: **POWELL, David, John** [GB/GB]; 33 Fishpond Lane, Egginton, Derby Derbyshire DE65 6JH (GB).

(74) Agents: **HACKNEY, Nigel** et al.; Mewburn Ellis LLP, York House, 23 Kingsway, London Greater London WC2B 6HP (GB).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

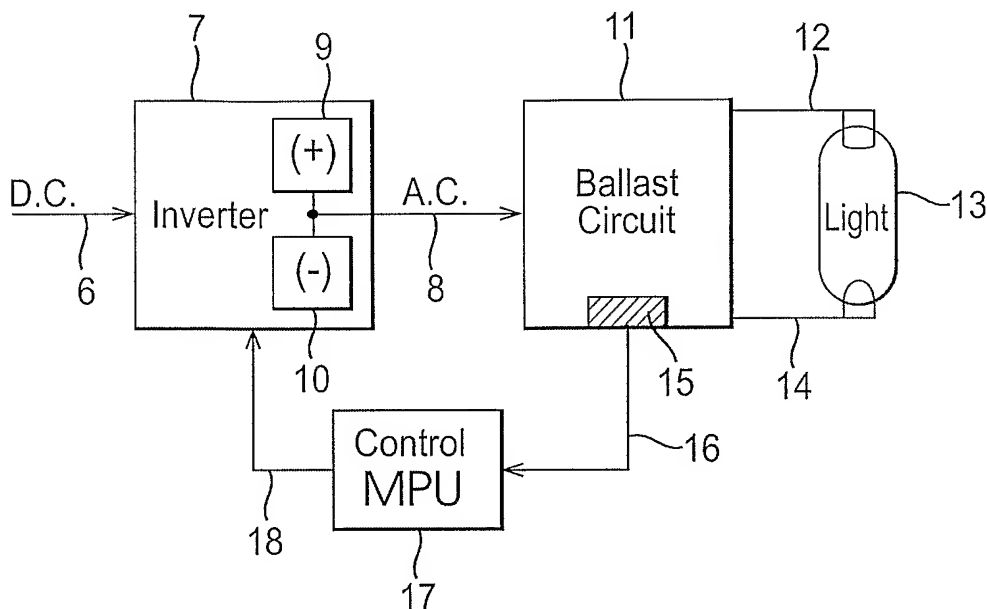
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: APPARATUS AND METHOD FOR CONTROLLING DISCHARGE LIGHTS



(57) Abstract: Apparatus and method for supplying AC power (*e.g.* from an inverter) to a discharge light *via* a ballast circuit formed by a resonant circuit, and controlling the frequency of the AC power signal so as to operate below the natural resonance frequency of the ballast circuit in use after the discharge light has "struck".

WO 2005/062683 A2

APPARATUS AND METHOD FOR CONTROLLING DISCHARGE LIGHTS

The present invention relates to apparatus and methods  
5 for controlling discharge type lights, such as  
fluorescent lights and the like.

Discharge lights operate by causing electricity to flow  
between two electrodes separated by an inert gas such as  
10 argon or krypton with a small amount of a conduction  
element such as mercury or xenon which may be in both  
liquid and vapour form. Electrical conduction, through  
the inert gas, is instigated by supplying a voltage to  
the electrodes of sufficient magnitude to cause electrons  
15 to migrate through the inert gas from one electrode to  
another. While travelling towards the anode (positive  
potential) electrode, electrons will typically collide  
with atoms of the conduction element with sufficient  
kinetic energy to ionise its vapour atoms and also  
20 vapourise the elements liquid atoms, thereby producing  
positive ions and further free electrons within the gas.  
Thus, a gas plasma of positively and negatively charged  
particles is produced. Electrons of the plasma continue  
to stream towards the anode of the electrodes while the  
25 much heavier positive ions of the plasma are accelerated  
towards the cathode thereof. This streaming of electrical  
charge sustains an electrical discharge within the  
discharge light.

30 Collisions within the plasma between electrons and  
ionised atoms of the conducting element causes the  
emission of light photons from the plasma as post-  
collisional ions relax from an excited state (caused by  
collision) to a ground state. In this way, electrical